

MINING METHOD DESCRIPTION

Production at the Haile Gold Mine (HGM) will consist of the phased mining of multiple open pits at a nominal mill ore processing rate of 7,000 tons of ore per day, 365 days per year. The current mine plan comprises eight pits; these are Ledbetter, Snake, Haile, Mill Zone, Red Hill, Chase, Small, and Champion. As exploration continues, it is expected that additional pits will be brought in to the mine plan. Mining will be on a 24 hour, 7 day per week schedule. The average life of mine strip ratio is approximately 7:1, overburden to ore. Mining rates vary by year with initial production being 40,000 tons per day ore plus overburden, and increasing to 79,000 tons per day within a few years. Mining equipment has been selected to provide flexible, efficient operation within the selected pit design parameters. Haul roads are constructed to connect the pit areas, the stockpile areas, and the primary crusher area. Haul roads are designed at minimum 100 foot operating width including safety berms and drainage. The maximum design gradient is 10%.

The mining cycle is divided into specific functions. Each function consists of unique operations and the operators require specific skill sets to complete them. The basic mining functions are drilling, blasting, loading, hauling, and support.

Concurrent reclamation will be performed during the mine life.

PRE-PRODUCTION

Following the initial clearing and grubbing, growth media will be removed from the affected areas and stockpiled and stabilized until it can be redistributed for concurrent and/or final reclamation of facilities.

A 12-year mine production plan indicates approximately 15.35 million tons of waste rock will be pre-stripped and 253,000 tons of ore will be stockpiled prior to production. The ore will be placed on a lined facility, Johnny's PAG near the plant site to be fed to the processing facility as scheduled.

OVERBURDEN PRODUCTION

Approximately 240 million tons of overburden material will be mined and selectively placed based on geochemical characteristics. An overburden management plan has been developed to sample, analyze, characterize and selectively handle to guide placement of non-ore material. Placement of the material will either be on a lined or unlined overburden facility, for use in the construction of the tailing storage facility embankment, or returned to one of the mined pits for backfill.

ORE PRODUCTION

Mining generally occurs from a minimum of two pits at a time, one in pre-stripping, and one in production. Since the mine area is overlain by coastal plains sand and saprolite, this material can be excavated without drilling and blasting. It will be loaded directly into haul trucks and transported to growth media stockpiles, Overburden Storage Areas (OSAs), or used in construction of the Tailing Storage Facility (TSF) embankment.

Drilling in rock zones will be conducted using rotary blasthole drills capable of drilling 6.5 inch diameter holes to a depth of 23 feet. The mining bench height is 20 feet and an additional 3 feet of subdrill is required to ensure a smooth pit floor is achieved. Drill holes will be completed on a blast pattern of approximately 14 feet by 14 feet. A sample of the drilled material, or cuttings, will be taken from each blast hole drilled. The samples will be delivered to an on-site laboratory for analysis. Individual blasts will consist of between 50 holes and 200 holes. Once an individual blast pattern has been completed, the pattern will be blasted to loosen the rock for subsequent excavation. The blast holes will be loaded with blasting agents, primed with cast boosters for initiation, and tied in with electronic programmable delays (EDETs).

The delays are used in order to time the blast propagation for optimizing rock fragmentation and minimize low-frequency vibrations to protect the pit slopes from damage. The EDETs provide an added measure of safety in that each detonator is checked for continuity and proper operation prior to initiating the blast. In all blasting operations the maximum peak particle velocity will not exceed regulatory limits at the immediate location of any dwelling, public building, school, church, or commercial or institutional building.

Loading equipment will consist of hydraulic front shovels and wheel loaders. The loading equipment will have bucket capacities of about 15 cubic yards. The loading equipment will excavate material from the pits and load it into mining trucks for transport to various destinations. The front shovel is selected for working in poor underfoot conditions that may impede the ability of a wheel loader to work efficiently. Wheel loaders are selected as they are highly mobile and can quickly tram from one working area to another. Wheel loaders will work in the pit excavating material and in stockpiles for rehandling.

Haulage equipment will be comprised of 100-ton capacity off road mining trucks. Material loaded from the pits will be transported to the processing facility, to overburden facilities, or to growth media stockpiles in mining trucks. Articulated mining trucks may be used from time to time where conditions warrant, such as in poor underfoot conditions. These trucks are smaller having a capacity of 40 tons.

Support operations are required to maintain pits, dumps, haul roads, stockpiles, and to perform construction as well as concurrent reclamation. The equipment used for support operations consists of a secondary rock drill, small loaders, small mining trucks, track-type tractors equipped with bulldozer and ripper, wheel dozers, motor graders, water trucks, and hydraulic backhoe excavators.

The initial mine mobile equipment list appears below. Additions and replacements to this list over the life of the mine include an additional blasthole drill, an additional wheel loader, and additional haul trucks as haul distances increase, an additional motor grader, and an additional water truck.

Major Mine Equipment	
Equipment Type	Quantity
Blasthole drill – 6 ½ inch	3
Front shovel – 14.4 cubic yard bucket	1
Wheel loader – 15.0 cubic yard bucket	1
Wheel loader – 17 cubic yard bucket	1
Haultruck – 100 ton capacity	12
Motor grader – 14 foot moldboard	1
Motor grader – 16 foot moldboard	1
Crawler dozer – 410 horsepower	3
Rubber tire dozer	1
Water truck – 13,000 gallon capacity	1
Excavator – 2 cubic yard	1
Compactor – 160 horsepower	1

Other mobile equipment will be necessary for maintenance operations and other functions. There will be a need for service trucks, mechanics trucks, forklifts, fuel trucks, lowboy truck, tire manipulator, and blasting agent transport/mix trucks.

MINING SEQUENCE AND PIT SCHEDULE

Each pit area will be cleared, grubbed, and the soil removed and stored in growth media stockpiles prior to mining activity.

Mining commences during pre-production in the Mill Zone Pit. The pre-production period is about one year and overburden material is removed from Mill Zone Pit to expose ore.

Once the ore processing facility is operational in year 1, ore is supplied from the Mill Zone Pit. Overburden stripping starts in Snake Pit.

Year 2 sees ore supplied by Mill Zone Pit and Snake Pit.

Year 3 sees Mill Zone Pit completed (approximately 400 feet deep) and backfilling starts. Haile Pit starts. Ore is supplied from the Snake Pit.

Year 4 Snake Pit provides ore. Haile Pit continues. Red Hill Pit is started as is Ledbetter Pit. Year 5 Snake Pit completed (approximately 600 feet deep) and backfilling starts. Haile Pit continues. Red Hill Pit continues. Ledbetter Pit continues.

The remaining years, through the end of the mine life, see the Haile and Red Hill Pits completed (approximately 380 feet deep and 240 feet deep, respectively) and backfilled. Mining continues in Ledbetter Pit and is completed in year 10 (approximately 840 feet deep). The Chase Hill Pit (approximately 240 feet deep) is mined in the out years, as are the Small (approximately 110 feet deep) and Champion (approximately 240 feet deep) Pits.

The final year of operation sees the ore stockpiles reclaimed and fed to the processing facility.